Steve Castleman, SBN 97564
Collin McCarthy, SBN 305489
Jordan Davis, PTL # 41751
Tai Yamanaka, PTL # 41173
Chloe Yaw, PTL # 41764
Environmental Law and Justice Clinic
Golden Gate University School of Law
536 Mission Street
San Francisco, California 94105-2968
Telephone: (415) 442-6675
Facsimile: (415) 896-2450

David C. Anton, SBN 94852
1717 Redwood Ln
Davis, CA 95616
Telephone: (530) 759-8421
Facsimile: (530) 759-8426

Attorneys for Petitioners
GREENACTION FOR HEALTH
AND ENVIRONMENTAL JUSTICE

UNITED STATES NUCLEAR REGULATORY COMMISSION

Before the Executive Director for Operations

GREENACTION FOR HEALTH AND ENVIRONMENTAL JUSTICE, Petitioner, v. TETRA TECH EC, Inc. Licensee.	**10 CFR §2.206 PETITION** **TO REVOKE MATERIALS** **LICENSE NO. 29-31396-01**

samples meeting the definition of 'low K-40' samples have been collected at HPNS."[24]

Although Tetra Tech interviewed various people during its investigation – some of those listed on the COCs, their supervisors, other members of the sampling crews and laboratory personnel – it stated, "[t]he results of the interviews were inconclusive."[25]

Tetra Tech's investigation was inconclusive because it failed to ask the right people the right questions. Tetra Tech directed the fraud and did not want its fraudulent conduct exposed. Had Tetra Tech employed trained investigators, they would have insisted on speaking to the right people, including former employees who no longer had a motive to keep quiet or be fired. A competent investigation would have discovered a pattern and practice of fraudulent activity directed by Tetra Tech's top onsite management.

Tetra Tech's investigation, though gravely flawed, got some things right: some of the causes of the fraud. Possible causes, the *Anomalous Samples Report* says, could be: improper focus on production ("i.e., that completion of work by a scheduled date was of undue importance"); inadequate field supervision; inadequate quality control; inadequate review of data; and inadequate concern for others (i.e., "individual workers may not have questioned actions by co-workers that appeared to be nonstandard").[26]

The *Anomalous Samples Report* failed to recognize a major driver of the fraud, however, namely that in order for Tetra Tech to get paid the final installment on a contract it needed to obtain final radiological clearance. The added cost and time involved in doing a proper and complete radiological remediation was more time and money than Tetra Tech was willing to expend, cutting into the company's profits.[27] In short, the *Anomalous Samples Report* was an effort to whitewash the soil-sampling fraud directed by Tetra Tech's management.

B. Types of Fraud

Former employees at HPNS describe six types of fraud: (1) fake sampling, in which soil samples were reported to have been taken at one location when they were actually taken from

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[24] Exhibit H at 3.
[25] *Id.*
[26] Exhibit H at 20.
[27] *See* Exhibit A at ¶¶ 11-12, 14, 51-52; Exhibit B at ¶¶ 10-11, 15-20, 24-27, 33-34.

another; (2) samples and their analytical results were discarded because they came back too "hot;" (3) scanning data were altered to make them appear acceptable; (4) building survey data were fabricated; (5) radioactive material in soil was inadequately remediated, resulting in potentially-contaminated soil being used as backfill for trenches at the Shipyard; and (6) Portal Monitor procedures were altered resulting in potentially radioactively-contaminated soil being allowed to be shipped offsite to points unknown.

1. Fake Soil Sampling: Parcels C, D, E

a. Fraudulent Sampling - Stage 1

As the *Anomalous Samples Report* details, samples purportedly taken from the footprint of former Building 517 (Parcel D) were actually taken from a different location. According to former employees at the Shipyard, B517 was not the only place from which samples were faked. Phony samples supposedly taken from various sites on the Shipyard, including the areas around Building 707 (Parcel E), the 500 Series of buildings (Parcel D), and Parcel C,[28] were actually taken elsewhere.

Senior HP Anthony Smith says fake sampling took place in two stages. At first, HPs were directed to take samples from the general location intended to be sampled, but to fudge the specific location of the samples.[29]

When they were tasked with soil sampling, proper procedure was for HPs to initially scan the soil seeking radioactive hot spots. The scanning data were used by engineers to identify locations of high radioactivity and then to plot out their locations on a map, with the highest readings delineating where soil samples should be taken.

HPs followed the correct procedure in the early years at Hunters Point. But that practice changed in the latter part of 2008 and early 2009. At that time, Tetra Tech was having difficulty obtaining free releases; post-remediation samples came back too "hot."

In response, HPs were ordered by their supervisors not to take the samples from the spots marked by the engineers as the highest radioactive-reading spots. Rather, the HPs were told to make it appear they took the samples from the marked spots, but to actually take the samples from clean

[28] *See* Exhibit I at 1, 6 (findings of fraudulent soil samples from Parcel C).

areas close by.[30] An HP (also known as a Radiation Control Technician, or "RCT") admitted this form of fraud to the NRC: "the RCT stated that, when sufficiently low contamination levels were not obtained, the RTS [Radiation Task Supervisor] would direct the RCT to move 5 to 10 feet in another direction and obtain a new sample from that location. Meanwhile, the new sample would be represented as having been obtained from the original, specified location."[31]

These close-by phony samples would be expected to have the same K-40 levels as other samples from the area, and might not involve K-40 activity below 5 picocuries. Thus, there is a strong likelihood that substantial numbers of fraudulent samples could not be identified by the Navy and regulators by focusing on the K-40 levels.

b. Fraudulent Sampling – Stage 2

Time and again the fraudulent post-remediation soil samples resulted in laboratory results with radioactive contamination above the free release levels. For example, around Building 707 repeated rounds of remediation failed to decontaminate all the soil; successive post-remediation samples came back too "hot." When sample results exceeded the free release levels, Tetra Tech was required to do more cleanup, which cost time and money.[32]

Due to the frustration of Tetra Tech's attempts to obtain free release and the desire to cut costs to increase profits, the manner of the fraud changed. HPs were directed by their supervisors to obtain false samples nowhere near the area intended to be sampled, but rather in at least three remote locations known from prior sampling to contain "clean" soil. Tetra Tech management pressured its supervisors to have the HPs engage in fraudulent sampling that would guarantee lab results under the free release levels so it could get fully paid without incurring the full costs of the cleanup.[33]

Former employees, like Senior HP Anthony Smith, state that he and others took the second-stage type of fraudulent samples from at least three locations known to be low in radiological activity. The specific location was chosen depending on the type of soil they were trying to match.[34]

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[29] Exhibit B at ¶¶ 15-16; *see also* Exhibit I at 6.
[30] *See* Exhibit B at ¶ 15.
[31] Exhibit I at 6.
[32] *See* Exhibit B at ¶¶ 16-19; Exhibit A at ¶¶ 11-12.
[33] *See* Exhibit B at ¶¶ 16-17.
[34] *Id.* at ¶ 18.

If HPs needed to match "green serpentine"[35] soil, Smith and others took false samples from one of two locations. Originally, the green serpentine soil used to submit false samples was taken from a sewer trench in front of the Building 500 series of buildings. That site was supplanted by a second one, an area inside the remains of the foundation of an old movie theater in the 500 series area. According to Smith, the theater foundation was preferable to the sewer trench because it afforded greater privacy – employees could take samples there unseen when inside the foundation walls. Smith says he would wait until laborers not involved in the fraud went to lunch or left for the day and he would then fill a 5-gallon bucket with soil from the theater site which he knew to be clean.[36]

If HPs needed to match sandy soil, they would fill five-gallon buckets with soil taken from an area under two palm trees in the vicinity of an old pump house (Building 521) that was also near the old movie theater foundation.[37]

c. Substituting Clean Soil for Potentially "Hot" Soil

Senior HP Smith states he would take the five-gallon buckets of either green serpentine or sandy soil to the Conex (a shipping container that acted as a temporary field office), where HP supervisor Steve Rolfe, his wife HP Tina Rolfe, and HP Rick Zahensky would transfer the soil into sample containers to substitute for real samples. The original, and potentially "hot" samples, would be emptied into another 5-gallon bucket and Smith would dump that soil into open trenches that had been dug for sewer removal. In short, the true soil samples were switched with the soil known to be radiologically clean with the intent to fraudulently "prove" to the Navy, regulators, and the public that all radiological hazards had been removed.

Smith estimates this type of false sampling happened "pretty much every day" over at least the last one-and-a-half years he worked at the Shipyard. He says fake soil samples he took from all three sites – the sewer trench, the palm tree site and the theater – resulted in 800 to 1,000 false

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[35] Exhibit H, Attachment 1 Site Conceptual Model for Low K-40 Soil, at 1 ("As mapped by the United States Geological Survey (USGS), the upland portion of HPNS consists of Franciscan bedrock and includes serpentine, chert, altered volcanic rocks, and interbedded sandstones and shales." The serpentine rock and soil derived from it at HPNS has a slight green tint.).

[36] Exhibit B at ¶ 18.

[37] *See* Exhibit M (map of Hunters Point Naval Shipyard identifying buildings by number).

samples.[38] Other HPs on the team under Smith's supervisor, Steve Rolfe, also regularly engaged in taking false soil samples, as did HPs under the supervision of Justin Hubbard.[39]

Samples were switched not only from the former site of Building 517, as acknowledged by the *Anomalous Samples Report.* Smith avers he switched samples taken from the area around the Building 707 "Triangle Area" in Parcel E, and the area of the former 500 series of buildings in Parcel D.[40] Other areas had falsely switched samples taken by HPs other than Smith, as reflected in the *Anomalous Samples Report*, including the North Pier and structures referred to as "shacks" 79 and 80, and in Parcel C, as the NRC Investigation Report states.[41]

Former employees declare that the fraudulent practices escalated in the years after Tetra Tech's contract with the Navy changed from a time-and-materials contract to a firm fixed-price contract.[42] This provided a financial incentive for fraud: the less time and resources Tetra Tech spent on sampling and cleanup, the more profit they would make.[43]

It is not clear if the switched soil samples taken from the 500 series trench, the old theater foundation and the two palm trees *all* had low K-40 activity or if one or more did not. If any of these locations had K-40 activity in soil over 5 picocuries, samples taken from them could not be identified as "anomalous" based on K-40 readings and the number of fraudulently switched soil samples could grow dramatically.

2. Destruction of "Hot" Soil Samples and Their Records

a. Building 351A

Building 351A had been used by the Navy's Radiological Defense Laboratory for decades conducting extensive experiments with hazardous radionuclides.[44] It was one of the last buildings in Parcel G that had not been free released. Clearance of building 351A was holding up final payment to Tetra Tech for all of the work the company had done in that parcel, potentially millions of dollars.

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[38] *See* Exhibit B at ¶ 19.
[39] *Id.* at ¶ 20
[40] *Id.* at ¶ 17.
[41] Exhibit I at 6.
[42] Exhibit B at ¶¶ 7-11, 16, 34.
[43] *See* Exhibit A at ¶¶ 6, 11-13.
[44] Exhibit B at ¶ 8.

Direct readings from radiological survey detection instruments indicated the presence of elevated radioactivity in a large amount of soil in a crawl space under Building 351A. Remediation attempts within the crawl space were performed in 2008 by a group of laborers who dug up the soil while HPs Anthony Smith and Josh Hooper monitored them. The laborers used pick axes, shovels and trowels to loosen the soil and a large vacuum truck that sucked the soil from under the building through an 8-inch hose. The soil was ultimately placed in bins to be disposed offsite as radioactive waste.[45]

At the conclusion of approximately two weeks of remediation, HPs Anthony Smith and Josh Hooper took post-remediation soil samples from the crawl space in an attempt to demonstrate that there was no longer any residual radiological contamination above established free-release levels. However, a post-remediation sample came back too "hot," demonstrating the radioactive cleanup had not been successfully completed. Proper procedure mandated another round of soil removal. This additional round of remediation would once again involve laborers and a vacuum truck, followed by another round of post-remediation sampling. However, Tetra Tech's management directed that proper procedures be ignored.

Smith and Hooper were summoned to a meeting that included Bill Dougherty, Tetra Tech's HPNS Project Manager, and Dennis McWade, Tetra Tech's Construction Superintendent, among other senior Tetra Tech and sub-contractor managers. Speaking of the vacuum truck, Dougherty told Hooper and Smith "Do you know how much that machine cost to rent for two weeks? We can't afford to do that again, get rid of that sample," or words to that effect. McWade gave Smith the containerized sample and its COC document, completely contrary to acceptable procedures, and Smith and Hooper did what they were told. They got rid of the sample and the COC record.[46]

Thereafter they engaged in the first type of soil-sampling fraud described above and took a false sample under Building 351A. Tetra Tech had its engineers mark the areas under the building that were known to be *clean* so that Smith could be assured he would not obtain another soil sample

[45] *Id.*
[46] *Id.* at ¶¶ 10-11.

that came back too "hot."[47] Smith says he understood, based on what his supervisors told him, that Tetra Tech wanted to get free release of the building despite the remaining contamination so Tetra Tech would get paid the final installment for its work in Parcel G.

Tetra Tech submitted false documents to the Navy claiming that Building 351A had been properly cleared of all radioactive material above release levels, when significantly elevated radioactivity, beyond free release levels, was known to still exist in the crawl space under the building. The radioactive contamination was not remediated over the next three-plus years that Smith continued to work at the Shipyard. To the best of his knowledge it never has been.[48]

Smith states that the soil sample from under Building 351A was the first instance where he was told to get rid of a sample. As further described below, it was not the last.

b. Parcel A Background Sample

In July or August 2009, Tetra Tech was about to start, or had just started, a project to remove sewer lines from under Fisher Avenue and Spear Streets in Parcel C. Smith was directed by Hubbard to obtain a background reference sample (i.e., a sample known not to be radioactively contaminated) for the Spear/Fisher sewer projects. Smith had been told that Parcel A was never used for any industrial purpose, that it was deemed by the Navy to be free of contamination and, as a result, had been transferred to the City of San Francisco for development in 2004. Because of its close proximity to the Fisher/Spear project and assuming Parcel A was clean, Smith determined it would be an appropriate place to obtain a background sample.[49]

Smith proceeded to a location just north of the intersection of Fisher Avenue and Spear Street.[50] On the north side of the road next to Fisher Avenue and just beyond the sidewalk, there is a concrete wall which descends in height as it extends west and parallel to Fisher Avenue. Beyond the wall is a hill that rises to the top of Parcel A. Just before the stop sign at the intersection of Fisher and Spear (i.e., just northeast of the intersection) and approximately 20 feet from a light pole on the north side of Fisher Avenue, the wall was about waist-high for Smith. Because of how the hill rose

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[47] *Id.* at ¶ 11.
[48] *Id.*
[49] Exhibit B at ¶ 12.
[50] In Exhibit M the location of Anthony Smith's Parcel A sample is marked in red.

behind the wall, Smith was able to reach over the wall and use a trowel to take a sample without bending over. He dug a hole about 6 inches deep in the hillside and took a sample from the bottom of the hole. He gave the sample to Justin Hubbard, who took it to the laboratory. In a violation of proper procedure, there was no chain-of-custody document accompanying the sample. [51]

The next day, Hubbard approached Smith and had the sample with him. In the presence of HPs Jeff Rolfe, Ray Roberson and Carey Bell, Hubbard told Smith the sample had come back "hot." Hubbard said it contained 2 to 3 picocuries per gram of cesium-137, which Smith knew was much higher than background levels and the cesium-137 cleanup standard of 0.113 picocuries per gram – 18 to 26 times higher than the set health and safety ceiling. Hubbard gave the sample to Smith and told him to "get rid of it and not say a word," or words to that effect. Smith took the sample back to the site where he had taken it and put the soil back in the hole he created earlier for taking the sample. He disposed of the plastic sample container by putting it in a bin set aside for radiological waste. That same day, Smith took a different sample, to be used as the background sample, from a distant site on the shipyard he knew to be clean from prior sampling and analysis.[52]

To the best of Smith's knowledge, the soil contamination he discovered in Parcel A was never thereafter remediated for cesium-137 or other potential radioactive contaminants.[53]

c. Radioactive Fencing

Tetra Tech established fenced-off areas within HPNS to separate locations known to contain radioactive contaminants from other areas that were not contaminated. These areas were referred to as Radiologically Controlled Areas or "RCAs." Much of the fencing used to establish the Radiologically Controlled Areas was rented from private companies.

In 2009, a large amount of fencing that had established the perimeter of an RCA was no longer needed. Tetra Tech directed HPs to scan the metal fencing panels for clearance to release the fencing to the rental company. Susan Andrews, a Senior HP, along with two other HPs, scanned the fencing with radiation detection field instruments. During the scanning, Tetra Tech Construction Superintendent McWade pressured the HPs to scan the fence quickly to obtain its release so it could

[51] Exhibit B at ¶ 12.
[52] *Id.* at ¶ 13.

be returned to its owner.[54]

Andrews' scanning detected significant radiation on the fence, what she termed "screaming hot." The fencing had apparently become infused with radioactive contaminants due to the length of use on the Shipyard. In an effort to be sure of her scan results, Andrews asked for HP Phil Poole's sensor to scan the same fence panels. The scan with Poole's sensor registered the same high radioactive readings. She then asked for HP Bob Evan's sensor and scanned the same fence panels, again getting the same "screaming hot" readings, far above release levels.

Proper procedure required that the fencing be put into an RCA because any radioactive material was required to be confined there. However, Construction Superintendent McWade refused to allow the fencing to be put into an RCA.[55]

Andrews completed her scanning and smears (i.e., swab samples) of the fencing. Following proper procedure, she took the scan meter and the smears to the lab at HPNS and turned the material in. The next day, Tetra Tech alternate Radiation Safety Officer Representative (RSOR) Charles Taylor told Andrews that the lab results from the smears she had submitted tested high for radioactivity, beyond free-release levels. Taylor informed Andrews that the sensor readings also showed elevated radioactivity above release standards. Andrews reviewed the lab results and the sensor readings, confirming the high radioactivity.[56]

Taylor told Andrews that Tetra Tech would not treat the fencing as radioactively contaminated despite the lab results and sensor readings. Tetra Tech RSOR Taylor ordered Andrews to go to the laboratory and obtain the smears and their associated records and destroy them. Taylor also ordered Andrews to delete the records of the elevated fencing readings from her sensor and from the Tetra Tech computer or else she would be fired. Andrews received this order in the presence of her supervisor Rhonda Richardson, who expressed concern that if these orders were not followed that both Andrews and she might be terminated. At no time did Richardson object to Taylor's orders or contend that the destruction of legitimate lab results and instrument readings was

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[53] *Id.* at ¶ 14.
[54] Exhibit C at ¶ 30.
[55] *Id.*
[56] *Id.* at ¶¶ 31-32.

improper.[57]

Andrews did what she was told. She went to the lab, obtained the smears and records and destroyed them. Andrews had worked in the lab previously, for about 4 years, and was familiar with the computer system, called "Access." Andrews erased the sensor readings from the computer but believed, from her experience and training, that her efforts did not erase them from the computer's hard drive, meaning a competent investigator might still be able to locate the records. Andrews subsequently informed Richardson and Taylor that she had complied with his order to destroy the smears, the lab results and the sensor data.[58]

Andrews says that thereafter the fence was stored outside an RCA for approximately a month, after which it was gone. Senior HP Bob Evans told Andrews he had gotten the fence released so it could be returned to the rental company. When she questioned how that happened, he replied, "I didn't scan where you did, dummy."[59]

3. Fraudulent Building Surveys

The contract between the Navy and Tetra Tech required the company to perform static scans and smears of buildings to determine if they were contaminated with radioactivity beyond free release levels. When a building was found to have elevated levels of radioactivity, Tetra Tech was contracted to engage in remediation to remove the radioactive contamination and bring contaminant levels below release levels. After remediation, Tetra Tech was required to again scan and take smears of the building to determine if all radioactive readings were within acceptable levels. Tetra Tech ordered the post-remediation building scans be done fraudulently so as to obtain free release.

Tetra Tech supervisors divided building areas into three classes, Class 1, 2 and 3.[60] They classified the floors and lowest two meters (or approximately 6 feet) of the walls to be Class 1. The proper way to conduct a Class 1 survey was to slowly scan the "probable sites" of contamination,

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[57] *Id* at ¶ 33.
[58] *Id* at ¶ 34.
[59] *Id* at ¶ 35.
[60] *See* Exhibit A at ¶ 75. The contract between the Navy and Tetra Tech defined Class 1, 2, and 3 differently from the way Tetra Tech supervisors in the field used the terms. Under the contract, Class 1, 2, and 3 were defined in large part based on information as to whether the area was known to be contaminated with radioactivity, suspected to be contaminated, or not believe to have contamination above free release levels, respectively.

such as drains down which radioactive liquids might have been poured, and to scan each surface (i.e., the floor and lower walls) using a Ludlum 2350 scanner (which measures gamma radiation) in a systematic grid. In addition, smear samples were to be taken from area surfaces which the scans identified as highest in radioactivity.

For Class 2, HPs were supposed to take static scan and smear samples in a systematic grid from the higher sections of the walls, above 2 meters. Class 3 areas were considered the ceiling and roof. Scans and smears were to be taken of these areas, but without requiring the strict grid patterns of a Class 1 or 2.

Proper building survey procedure was not followed.

Anthony Smith was assigned to perform a large number of building surveys. Sometime between the summer of 2010 and early 2011, he was assigned to do building surveys in Building 707, buildings and building footprints throughout the 500 series and Buildings 351, 351A, 411, 401, 414, 406, 144, 146, 130, 103, 113, and 521. Smith's Tetra Tech HP supervisor, Steve Rolfe, told his survey team, consisting of Jeff Rolfe, Rick Zahensky and Smith, not to worry about doing Class 2 or 3 scans and smears at all. Rather, they were instructed to "just get some numbers and get it done," or "just set your meter down on the ground and let it count," meaning they should allow the scanner to operate in order to obtain data, but that the scanner should be stationary rather than doing a systematic survey of the area as required. Smith and his co-workers followed instructions, did not do proper Class 2 and 3 scans, and reported fraudulent data for the Class 2 and Class 3 scans for nearly all buildings at Hunters Point.[61]

When Smith challenged this practice, Tetra Tech HP supervisor Steve Rolfe told him, "That's what Bill Dougherty [Tetra Tech's Project Manager] wants." The false scanning was also done on other buildings by HP Supervisor Justin Hubbard's team, including Buildings 103, 114, 145, 130, 439, 366, and 813.

4. Fraudulent Data Reporting

The contract between the Navy and Tetra Tech required the company to do scans for radioactive contaminants of buildings, developed areas, and areas of open soil.

Tetra Tech directed that scan data be altered that were too high, which would result in having to do additional expensive remediation, or too low, which would raise questions about the scan integrity and potentially require that the scanning be entirely redone.

Anthony Smith personally witnessed HP Tina Rolfe changing scan results so that they would fall within acceptable limits, that is, not too high but not too low to raise suspicions. One time when Smith was downloading data from his equipment onto a computer, he came up behind Tina Rolfe and saw her working on a computer changing readouts from a Ludlum 2350. Smith estimates that the HPs downloaded thousands of scan results per day. He states that changing these scan numbers was a very simple thing to do. He also saw her changing numbers on readings from a Ludlum 2360 (which collects surveillance data for alpha and beta radiation). The fact that Tetra Tech was "changing the numbers" was common knowledge among the HPs. Both HPs Ray Roberson and Joe Cunningham told Smith they were aware that scan results were being altered.[62]

Smith observed that Tina Rolfe was directed to change the numbers by her husband, Steve Rolfe, a Tetra Tech HP supervisor. Several times he heard Steve Rolfe say of one sample or another, "that number's too high, it's way above background," and he directed that it be altered to be lower to be closer to the background levels.[63] Tetra Tech HP supervisor Justin Hubbard was also aware of the alterations. Smith complained about the scan results being changed, and Hubbard told him that Tetra Tech was doing it everywhere else on the Shipyard.[64]

Smith reports that Senior HP Rick Zahensky told him he also changed scan result numbers for an extended period, involving many months, if not years. On numerous occasions Zahensky took a computer home in order to change scan results overnight. Zahensky told Smith that at times he worked until the early hours of the morning to "get the numbers right." Smith was present on several occasions when Zahensky did not "get the numbers right," and was "chewed out" by Steve Rolfe. Smith also witnessed Tina Rolfe being "chewed out" by her husband Steve, when numbers remained

[61] Exhibit B at ¶ 25.
[62] *Id.* ¶ 26.
[63] Exhibit B at ¶ 26.
[64] *Id.* at ¶ 27.

too high or too low.[65]

Tetra Tech also violated proper protocol by holding up the delivery of the scan results to the project management office. Proper procedure was that the scan results were to be submitted to the office by the end of each day on thumb drives. However, rather than submit scan results by day's end, the scan results were held up so that employees like Zahensky could manipulate results that were deemed too high or too low. When Zahensky was given the scan results to take home in the evening, the thumb drive was not submitted until the following day at the earliest. The office had no objection to the tardy delivery of the scan results, since their fraudulent manipulation was done at the direction and insistence of Tetra Tech's upper-level onsite project management.[66]

Bert Bowers, the former RSOR, states that a lab technician, Neil Berrett, and a lab supervisor, Phil Smith, came to him on separate occasions complaining they were being asked by upper level project management to "write away" laboratory analysis results, that is, change the results of sample analyses and scans. Bowers directed the employees to go back to the project management, talk with them, and come back to Bowers if they were not satisfied. At that time, Bowers had not been aware project management had been ordering the falsification of samples and scan results.[67]

5. Potentially Hazardous Radioactive Soil Shipped Offsite and Backfilled at HPNS

In the years preceding the Shipyard cleanup, Navy studies established that many of the drain and sewer lines throughout the base were contaminated as a result of the Navy having previously disposed of radioactive waste by simply dumping it down the drain. Investigation also found that many of the drain and sewer lines had severely broken or cracked over the years, causing radioactive contamination to leach into the surrounding soil. Remediating the extensive radioactive contamination stemming from drain and sewer lines was thus a major component of Tetra Tech's cleanup responsibilities at HPNS, and included large-scale soil excavation and sewer and drain line removal.

Soil removed from around the sewer lines was required to be scanned and remediated as

[65] *Id.* at ¶ 26.
[66] *Id.*

necessary. Soil that remained contaminated with radiation was to be disposed of as low-level radioactive waste. Soil that was deemed successfully remediated was either backfilled into trenches at the Shipyard or shipped offsite to be used for commercial purposes.[68]

From the very beginning of the sewer trench remediation, however, potentially radioactive soil was allowed to be shipped offsite that Tetra Tech claimed was free of radioactive materials when it may not have been. Tetra Tech management engaged in deliberate fraudulent practices to conceal the potentially radioactive nature of soil cleared for use as backfill. To date, Tetra Tech has failed to alert the public of the potentially hazardous nature of soil that left the Shipyard or acknowledge that potentially radioactive soil was backfilled throughout the Shipyard.

a. Potentially Hazardous Radioactive Soil Shipped Offsite

In late 2005, soon after Tetra Tech began remediating soil that had been removed from trenching in connection with drain and sewer line removal and the broad remediation of areas within Parcel E, Tetra Tech established a conveyor belt system at HPNS to screen soil for radioactive material above release levels.[69] Under this system the soil was first spread no more than 6 inches deep on a conveyor belt. The soil was then to be moved at an established slow speed under radiological sensors that would set off an alarm if the sensors picked up excessive radioactivity. If the alarms sounded, the soil within a specified number of feet on either side of the sensors was to be removed from the conveyor belt and placed in low level radioactive containers for offsite disposal. The soil that did not set off the radiological sensor alarms was permitted unrestricted radiological release from Hunters Point unless it was chemically contaminated.[70]

Sometime in early 2006, RSOR representative Bert Bowers contacted Ulrika Messer, a Tetra Tech manager in San Diego who was responsible for the conveyor belt system and the specific contracts under which the conveyor belt processing was being undertaken. Bowers informed Messer that NWE had reached 80% of the budgeted costs Tetra Tech had allotted for the conveyor belt processing of radioactively contaminated soil. Messer reacted very strongly, screaming at Bowers

[67] Exhibit A at ¶ 53.
[68] *See* Exhibit A at ¶ 43; Exhibit B at ¶ 28.
[69] *Id.* at ¶ 20.
[70] *Id.* at ¶¶ 17-18.

and saying she would have to go to Tetra Tech VP Neil Hart to "beg" for more money for the conveyor belt processing of the remaining soil.[71]

After Bowers alerted Tetra Tech to the budgeted funds running low, Tetra Tech Construction Superintendent Joe Levell, who reported to Messer, substantially increased the conveyor belt speed. Increasing the speed made the radiation detectors much less able to detect radiological contamination. Tetra Tech's internal memos admit that the speeds were increased to double the approved speed. However, HPs who worked on the conveyor belt system report that the speeds were actually increased by a factor of 6 to 9 times the authorized conveyor belt speed.[72] Bowers estimates that the high scanning speed would make the radiation detectors nearly worthless, unable to detect all but extreme radiation emissions.[73]

In that same 2006 timeframe, further efforts to cripple the effectiveness of the conveyor belt system were taken. Messer communicated regularly with NWE CEO Mike Wilson. The brother of Mike Wilson, Gary, was a senior HP working at the Shipyard for NWE. Sometime shortly after Bowers informed Messer that the budget for operating the conveyor belt systems was nearly maxed out, Gary Wilson, with the assistance of HP Jane Taylor, silenced the sensor alarms so the sensor system would never alert that excessive radioactive contamination was present in the soil.[74]

After months of the improper conveyor belt speed and alarm deactivation, HPs raised objections to Tetra Tech, ultimately forcing it to stop the improper conveyor belt use in July 2006. When Gary Wilson was questioned about why he and Jane Taylor deactivated the sensor alarms, he stated that they were silenced because they were going off so much that a large amount of the soil was found to be radiologically contaminated and Tetra Tech wanted less soil deemed contaminated. Wilson also said the alarms were silenced due to pressure from Tetra Tech management.[75]

In the months prior to July 2006, before the use of the conveyor belt system was stopped, tens of thousands of cubic yards of soil were fraudulently "cleared" as non-radiologically contaminated due to the excessive conveyor belt speed and disabling the alarm. Tens of thousands of

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[71] *Id.* at ¶ 20.
[72] *Id.* at ¶¶ 17, 21-23; *see also* Exhibit B at ¶ 29; Exhibit N, Decl. of Robert McLean, ¶¶ 8-11.
[73] *See* Exhibit A at ¶ 22.
[74] *See* Exhibit B at ¶ 29, Exhibit A at ¶ 23.

cubic yards of soil fraudulently "cleared" were shipped off Hunters Point for use by unknowing customers before July of 2006.

Tetra Tech management, including Tetra Tech Vice President Neil Hart, was aware that tens of thousands of cubic yards of potentially contaminated soil with levels of radioactivity above release levels had been improperly screened by the conveyor belt system. VP Hart and others in Tetra Tech management also knew that Tetra Tech could not represent that the soil was free of hazardous radioactivity. Despite this knowledge, Tetra Tech took no steps to inform the recipients of the soil that it was potentially hazardous. Moreover, Tetra Tech took no steps to inform appropriate regulatory agencies.[76] Tetra Tech's failure to warn the public and regulatory agencies of the risk it created is a breach of the trust the NRC placed in the company by granting it a license.

b. Potentially Hazardous Radioactive Soil Used As Backfill

After the conveyor belt system was exposed as having been misused and ineffective, Tetra Tech implemented an alternative soil scanning system using Radiological Screening Yard ("RSY") pads. In the RSY pad system, soil excavated from trenches was spread out in an approximately 6-inch layer across a pad roughly the size of a football field and scanned for radioactivity above release levels. At first, HPs walked the pad hand scanning for radioactivity and they would remove soil registering above release levels.

Later, as the process of having HPs walk and scan the RSY pads proved to be time consuming and expensive, Tetra Tech switched to using an array of radioactive sensors pulled behind a small tractor, known in the field as a "towed array." With the towed array system, the information gathered by sensors, including GPS data, was transmitted to a data center computer. A data specialist would then develop a detailed map of the areas of soil on the pad marking the highest radioactive readings. The map was then transmitted to an HP who would direct other HPs to the high-level spots to remove the radioactive soil.[77]

The RSY pad system was central to determining if soil removed from the trenches was to be

[75] *See* Exhibit A at ¶ 23; Exhibit B at ¶ 30.
[76] *Id.* at ¶ 24; *see also* Exhibit B at ¶ 32.
[77] Exhibit A at ¶ 37.

disposed of as radioactive waste or could be used as backfill at the Shipyard.[78] In its early stages, 2008 and early 2009, the towed array appears to have been used properly and experienced and qualified HPs led the process. The towed array procedure for the RSY pads also proved much more effective compared to having the HPs hand-scan the soil. Still, RSY pad processing was expensive and time consuming for Tetra Tech, and the fixed price contracts provided an incentive for work to be performed quickly and fraudulently at minimal cost.

c. Unqualified Supervisors and Untrained Workers Responsible for RSY Pad Soil Processing

Beginning in 2009, Tetra Tech undertook conduct aimed at cutting the cost of the RSY pad soil processing and in turn severely undermined the credibility of RSY remediation work. Most notably, Tetra Tech installed unqualified workers in positions of responsibility at the RSY pads, some of whom had no experience in the radiological industry.

For example, Jane Taylor was hired as a Junior HP in 2006 despite suspicion her resume was fraudulent. Jane Taylor had a daughter, Samantha Taylor, who was a Junior HP at the Shipyard. Jane Taylor wanted Samantha Taylor to help her get a job at Hunters Point. According to Senior HP Arthur Jahr, Samantha Taylor asked him to lie on Jane Taylor's behalf, asking Jahr to falsely state he had previously worked with Jane in the radiological field. Jahr refused.[79] Furthermore, according to Senior HP Richard Stoney, Samantha Taylor told him that her mother had no radiological experience.

In applying for a job through New World Environmental, Jane Taylor submitted a resume that claimed she had years of radiological experience working for a firm called "Taylor Made Construction." However, RSOR Bert Bowers was familiar with firms that did radiological work, had never heard of "Taylor Made," and came to the conclusion that the resume was fraudulent. Bowers shared this suspicion with Kari Guidry, NWE's Human Resources Director. Subsequently Jane Taylor submitted a second resume that omitted any reference to "Taylor Made Construction" and the claim she had prior radiological experience.

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[78] *Id.* at ¶ 43.

[79] Exhibit E, Decl. of Arthur Jahr III, ¶ 10-11; *see also* Exhibit C at ¶¶ 18-25; Exhibit G, Decl. of Richard Stoney, ¶¶ 5-9; Exhibit A at ¶¶ 29-36.

Despite the red flags raised about her resume, Taylor was hired as a Junior HP, and within just a few months, promoted to Senior HP even though it normally took Junior HPs at least several years to gain the experience necessary to be a Senior.

Other HPs who observed Taylor's work saw that she was not competent to be an HP at all, let alone a Senior HP.

Subsequently, Taylor left HPNS to pursue work elsewhere. However, she was rehired a short time later. At the insistence of Construction Superintendent Dennis McWade, with whom Taylor had a romantic relationship (and later married), Taylor was re-hired as a Senior HP.[80]

Sometime in 2009, Taylor was put in charge of the RSY pad radiological remediation.[81]

In early 2009, Tetra Tech hired Thorpe Q. Miller to oversee the data system used for the RSY pad processing, including the development of the maps used for the remediation of soil on the RSY pads. Bowers states that Miller did not have the education, training, or experience required by the Navy contracts to hold this position.[82]

However, Miller is the son of Laurie Lowman, who was the Lead Environmental Protection Manager in the Navy's Radiological Affairs Support Office (RASO), responsible for oversight of Tetra Tech and the radiological remediation at Hunters Point. Tetra Tech employed him apparently as a favor to Lowman and to curry favor with her. Miller was originally a Tetra Tech employee, but its management arranged to have him employed by a subcontractor, though his job was exactly the same, in an attempt to avoid the conflict of interest being so obvious.[83]

With Miller and Taylor in charge of the RSY pad processing, Tetra Tech stopped having qualified HPs perform soil sampling and removal on the pads. Tetra Tech instead had unskilled laborers assist Taylor at the RSYs. According to accounts of former HPs, trained and skilled Senior HPs were not regularly assigned to RSY pad processing from 2010 on.[84]

The use of unskilled laborers for the RSY pad processing under the supervision of Taylor put the health and safety of the laborers at risk. The laborers were not sufficiently trained to understand

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[80] Exhibit A at ¶¶ 33-34.
[81] *Id.* at ¶ 36.
[82] *Id.* at ¶ 37.
[83] *Id.* at ¶¶ 38-40.

the health risks of inhaling or ingesting the radioactive contamination they were working with, and Taylor lacked the competence to ensure the laborers performed the work properly and safely. Senior HP Art Jahr observed laborers working the RSY pads with Taylor without the proper protective equipment, such as gloves and respiratory protection. Jahr also observed the laborers creating unnecessary dust and misusing the Ludlum sensors by swinging them too high and too fast over the ground, rendering the instruments ineffective. In August of 2010, Jahr brought his concerns over the laborer's conduct and the lack of proper supervision by Taylor to a Tetra Tech supervisor, Brian White. Jahr told White that if NRC inspectors saw the conduct Taylor was supervising, the NRC would shut down the HPNS project. Jahr was terminated shortly thereafter.[85]

Other Senior HPs also observed the conduct of Taylor in her supervision of the RSYs. For example, in processing the RSY pads, soil samples were to be taken from the 32 highest radioactive reading spots that the towed array identified and Miller mapped. On one occasion, Senior HP Archie Jackson overheard laborers tell Taylor they had collected less than the necessary 32 samples from a pad. Jackson then overheard Taylor direct the laborers to "just get the soil from anywhere," that is, it did not matter if the soil samples came from the proper RSY pad.[86] The direction given by Taylor was in clear violation of procedures and resulted in the fraudulent submission of soil samples from the wrong location. It also calls into the question the legitimacy of the RSY remediation process.

d. Backfilling with Potentially Hazardous Radioactive Soil

Taylor and Miller were responsible for selecting the locations from which soil samples were taken at RSY pads. The protocol established by the Navy required that the soil samples be taken from the locations on the pad with the highest readings of radioactive activity.[87]

Some soil processed at the RSY and determined to be free from contamination was used as backfill. Other soil cleared from the RSY pads as no longer containing high levels of radioactive contamination was to be shipped offsite, going through the Portal Monitor for a final check.[88]

Miller and Taylor saw to it that the large majority of soil excavated from the sewer trenches

[84] *Id.* at ¶ 36; Exhibit E at ¶¶ 13, 18; Exhibit D, Decl. of Archie Jackson, ¶¶ 10-12.
[85] Exhibit E at ¶ 18.
[86] Exhibit D at ¶¶ 15-17.
[87] *See* Exhibit A at ¶ 37; Exhibit C at ¶¶ 41-42.

was not treated as radioactively-contaminated soil. For example, soil removed from a parcel referred to as "UC-3 Work Area #16" had 1,023 cubic yards of soil removed. After processing which Miller and Taylor oversaw, only 10 cubic yards of soil were remediated as containing radioactive and chemical contamination, or less than .01% of the soil processed.[89] Through intentional fraud or incompetence, taking samples that avoided the existing high radioactivity in the RSY pad soil permitted the tests to incorrectly meet the Navy standards and incorrectly obtain clearance for the RSY pad soil to be used as backfill at Hunters Point.[90]

Tetra Tech knew that the RSY pad processing under the supervision of Miller and Taylor resulted in dramatically more Portal Monitor failures in 2010 and the first 9 months of 2011. Tetra Tech also knew that the soil cleared to be used as backfill at HPNS never went through the Portal Monitor screening process.[91] Despite the fact that the soil leading to increased Portal Monitor alarms had been processed by the same individuals as the soil cleared for backfill, Tetra Tech never took any steps to verify that the soil that was to be used as backfill at Hunters Point did not contain the same type of residual radiological contamination that led to increased Portal Monitor failures.

6. Change in the Portal Monitor Process

When the Portal Monitor process was first instituted, the Navy required loaded trucks to pass through the Portal Monitor to detect whether hazardous radioactive contamination existed in the truckload. If a truckload set off the Portal Monitor alarm, the truck was to go through the Portal Monitor two more times. If the truck failed two out of three passes, then the load was not to go offsite. Rather, HPs were to scan the truck's load in an effort to locate the radioactive material and the load was required to be taken back to the RSY pads to be reprocessed.[92]

By 2011, trucks loaded with RSY-processed soil were frequently failing the Portal Monitor screening. Senior HP Susan Andrews recalls, and entered into her logs, that when working the Portal Monitor in the first half of 2011, nearly all of the 37 loaded trucks she screened one day set off the Portal Monitor alarm, requiring all loads to be returned to the RSY pad to be re-worked. The time

[88] *See* Exhibit A at ¶ 43.
[89] Exhibit A at ¶ 44; Exhibit A, Attachments 4, 5 ("Exhibit A4" and "Exhibit A5," respectively).
[90] *See* Exhibit C at ¶¶ 44-45.
[91] *Id.* at ¶¶ 42-43; *see also* Exhibit C at ¶¶ 43-44.

and expense to Tetra Tech associated with the Portal Monitor failures was significant as loads needed to be reprocessed entirely.[93]

In early September 2011, Tetra Tech responded to the increased Portal Monitor failures by making two fundamental changes affecting loads of soil from the RSY pads. First, Tetra Tech substantially decreased the sensitivity of the Portal Monitor from "sigma 3 plus mean background level" to "sigma 8 plus mean background level."[94] This means in plain language that the sensor sensitivity was decreased by nearly two-thirds. Radioactivity that should have set off the alarm no longer set it off. This change crippled the Portal Monitor's effectiveness in catching excessive radioactivity that could cause disease, including cancer.

Second, Tetra Tech weakened the procedure for scanning trucks after radioactivity set off the Portal Monitor alarm. Before the September 2011 changes, a truckload that set off the alarm on two out of three passes had to have the load returned to the RSY pads to be re-worked. After the change in procedure, Tetra Tech instituted a hand-scanning process that virtually ensured hazardous levels of radioactivity would not be found, allowing the truckload to be released and leave Hunters Point.

Tetra Tech had learned from years of experience with the Portal Monitor that HPs usually located the radioactive materials that set off the alarm when they scanned the soil in the load by climbing a scaffold and scanning over the top of the trailer. Tetra Tech also knew from the prior years that very few scans through the body of the trailer were able to detect the radioactive materials due to shielding by the metal trailer body and the thickness of the soil in the trailer.[95]

In September 2011, Tetra Tech forbade the HPs to use the scaffolding and required that the scanning be done solely through the metal shell of the trailer. This change also allowed a load that failed the newly weakened Portal Monitor to leave the Shipyard without having to be sent back to the RSY pads to be reworked.[96] The Portal Monitor became largely irrelevant because loads that failed the Portal Monitor were allowed to leave Hunters Point as non-radioactive based on a corrupt

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[92] *See* Exhibit C at ¶ 46.
[93] *Id.* at ¶¶8, 45.
[94] Exhibit C at ¶ 46.
[95] *See id.* at ¶ 48.
[96] *Id.* at ¶¶ 49-50.

scanning procedure.[97]

As a result of the changes Tetra Tech made to the Portal Monitor, potentially hazardous radioactive materials were regularly permitted to leave Hunters Point designated as free of hazardous radioactivity. Tetra Tech was able to dramatically reduce the costs it incurred for the soil processing. The September 2011 changes increased profits at the expense of those who unknowingly received potentially hazardous radioactive soil from the Shipyard.[98]

Tetra Tech's practice of putting incompetent individuals in charge of the critical RSY screening process, removing competent HPs from the process, reducing the sensitivity of the Portal Monitor, and barring HPs from scanning truckloads from an overhead scaffolding increased the likelihood that radioactive soil above the cleanup standard was shipped off HPNS. To date, Tetra Tech has not alerted the entities that received soil from HPNS after September 2011 that the soil may contain elevated radioactivity at levels potentially hazardous to health.

C. Tetra Tech's Motive to Commit Fraud

Tetra Tech put its production schedule and profits ahead of proper radiological sampling and remediation. As early as 2006, it demonstrated it was willing to cut corners, taking steps to fraudulently disable its scanning system for detecting elevated levels of radioactivity in soil, resulting in potentially contaminated soil being shipped offsite.

Starting in 2009 and continuing thereafter, the agreements between the Navy and Tetra Tech changed from cost-plus contracts to firm fixed-price contracts,[99] which significantly accelerated Tetra Tech's fraudulent practices. After this change, Tetra Tech faked both radiological investigation and remediation; unlike previously, cutting costs led directly to increased profits.

Furthermore, under the fixed-price contracts, the bulk of the payments to Tetra Tech – and bonuses for its management – depended on the Navy obtaining free release of materials, soil, areas and buildings. Tetra Tech was to be paid in incremental stages on each contract covering specific areas, but was not to be paid the largest share of the contract – 40% – until all hazardous radioactive

[97] *Id* at ¶ 50.
[98] *Id.* at ¶ 49.
[99] *See* Exhibit A at ¶ 11; Exhibit A, Attachment 1(Scope of Work Contract dated June 24, 2011) ("Exhibit A1").

materials were removed and post-remediation sampling indicated radioactivity fell below cleanup levels established under the contract. This substantial final payment motivated the fraudulent sampling and remediation necessary to obtain free release, encouraging Tetra Tech to falsely claim remediation was successfully completed when it was not.

Tetra Tech found that certain areas of the Shipyard, like the Building 707 "Triangle" area, proved difficult to meet free release levels because elevated radioactivity continued to be found in post-remediation samples despite repeated efforts at remediation. Tetra Tech chose not to incur the additional costs of cleanup and have payment delayed. Rather, the management of Tetra Tech directed HPs to engage in fraud.[100]

HPs also had an incentive to go along with the fraud. They were paid both a salary and a generous tax-free per diem, adding up to substantial compensation. In addition, the cleanup was slated to last for years, making a job at the Shipyard unusually stable, unlike the short stints of work HPs were used to during nuclear plants' temporary shut-downs. The money and stability were powerful inducements to be complicit in the management-directed fraud rather than to challenge improper practices, no matter how wrong they were.[101] In addition to the inducements of stable employment and substantial pay, Tetra Tech also kept HPs in line with threats. Management compelled HPs to engage in fraud or be fired.[102]

This combination of "carrots" and "sticks" created a toxic Tetra Tech culture of fraud. But some HPs were sufficiently offended by Tetra Tech's practices that they quit rather than be complicit. Others felt badly enough about what they had been ordered to do that they "blew the whistle" after they left the Shipyard. These HPs are the whistleblowers whose declarations, under penalty of perjury, support this Petition.

D. A Culture of Fraudulent Work and Cover-up

Tetra Tech's toxic culture overemphasized production at the expense of radiological safety. Its onsite management viewed radiological investigation and remediation as impediments to the construction schedule. Its Radiological Safety Department was not sufficiently independent of the

[100] *See* Exhibit B at ¶¶ 7-11, 15-20, 24-31.
[101] *Id.* at ¶ 34.